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Application for Patent

A Tamper Resistant Bait Station and Locking Mechanism There For

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Technical Field of the Invention

[1000] The present invention relates to the field of rodent and insect bait stations.

Background of the Invention

[1001] Bait stations are used to house poisonous bait that kill rodents or insects. Typical rodent bait station configurations are described in United States Patents numbered 5,448,852 and 5,040,327. In summary, a typical rodent bait station comprises an enclosure containing poisonous bait. One or more doorways into the enclosure is provided for the rodent to enter and eat some of the bait. The poisonous bait causes the rodent to die after leaving the bait station. Partitions within the enclosure prevent harm to a child by forming angles around which a child cannot reach to touch the bait. A lid that can only be opened with a special tool is provided to replace the bait, thereby making the bait station tamper resistant. Insect bait stations are similar in operation.

Summary of the Invention

[1002] The present invention provides an improved tamper resistant bait station. According to one aspect of the invention, a bait station is provided with an improved, but simple, latch mechanism that is unlocked with a key. According to another aspect of the invention, a lip engaging mechanism provides further tamper resistance by preventing the lid of the bait station from being pried open. Also, a curved surface formed along the interior periphery improves maintenance by increasing the ease with which debris can be removed from the bait station through the rodent entryway doors without any adverse impact upon the tamper resistance of the structure.

[1003] The foregoing has outlined rather broadly aspects, features and technical advantages of the present invention in order that the detailed description of the invention that follows may be better understood. Additional aspects, features and advantages of the invention will be described hereinafter. It should be appreciated by those skilled in the art that the disclosure provided herein may be readily utilized as a basis for modifying or designing other structures for carrying out the same purposes of the present invention. Persons of skill in the art will realize that such equivalent constructions do not depart from the spirit and scope of the invention as set forth in the appended claims, and that not all objects attainable by the present invention need be attained in each and every embodiment that falls within the scope of the appended claims.

Brief Description of the Drawings

[1004] For a more complete understanding of the present invention, and the advantages thereof, reference is now made to the following descriptions taken in conjunction with the accompanying drawings, in which:

[1005] Figure 1 is a top view of a preferred embodiment of the present invention.

[1006] Figure 2 is a side view of a preferred embodiment of the present invention.

[1007] Figure 3 is a curvature drawing of deflection elements of an embodiment of the present invention.

[1008] Figure 4 is a curvature drawing of retention mechanisms of an embodiment of the present invention.

[1009] Figure 5 is a drawing of a key for unlatching an embodiment of the latching mechanism of the present invention.

[1010] Figure 6 is a front view of a preferred embodiment of the present invention.

Detailed Description of the Preferred Embodiments

[1011] A top view of a preferred embodiment of the present invention is shown in Figure 1. An enclosure 1000 for a bait station is preferably molded from a suitable plastic material as an integral unit. A lid 2000 shown in the open position in Figure 1 is molded to the enclosure 1000. Formed in lid 2000 are two sets of locking retention elements 3000 which, when the lid is closed, interlock with corresponding sets of deflection elements 4000 integrally molded into the enclosure 1000.

[1012] Formed in bait station 1000 are two doors 1700, one in each sidewall of the station, to enable rodents and other pests, such as roaches, to enter and exit the enclosure. Interior to the enclosure is a bait chamber formed by walls 1900 that extend vertically from the bottom of enclosure 1000 up to the top of the enclosure flush with the surface of lid 2000 when lid 2000 is closed. A door 1500 to the bait chamber enables the rodent or pest to enter and access the poisonous bait placed in the bait chamber in region A.

[1013] Figure 2 is a side view of a preferred embodiment of the present invention, showing side door 1700 and interior wall 1900. Note that the orientation and dimension of the enclosure doors 1700 and bait chamber door 1500 in wall 1900 is such that no child could insert his or her hand into the enclosure 1000 and reach the bait. Also note that the door 1500 exhibits a threshold 1600 that is raised slightly, about a half inch from the bottom of enclosure 1000, to prevent liquid from entering the bait chamber.

[1014] At the top of enclosure 1000 is an exterior lip 1300 that protrudes upward from a surface 1200 and extends around at least most of the outer periphery of the top of the enclosure. A second lip 1100 also protrudes upward from surface 1200 and extends around at least most of the periphery of the top of enclosure 1000, following a path a distance t from the edge of lip 1300. At the top of lid 2000 is also a lip 2200 extending around at least most of the periphery of lid 2000. When lid 2000 is closed to cover enclosure 1000, then lip 2200 fits between lips 1300 and 1100. More particularly, the outer most edge 2201 of lip 2200 fits snugly against or closely adjacent to the inner most edge 1301 of lip 1300. This prevents an attempt to pry open the lid by preventing a sharp or flat -edged object from being inserted between the top of the enclosure and the lid, thereby adding supplemental tamper resistance. Thus, a lip engaging mechanism is provided to further enhance the tamper-resistant functionality of the bait station of the present invention. Note that the engaging lips 1300 and 2200 should preferably extend around a substantial portion of the periphery of the top of the enclosure to substantially eliminate any region around the periphery where prying of the lid can occur.

[1015] Also shown in Figure 1, integrally molded into lid 2000 are ridges 2600. These ridges add strength to the lid. Further, forced lateral shifting of the lid is substantially

prevented because ridges 2600 when shifted laterally will contact and be blocked by walls 1900 from any substantial lateral shifting.

[1016] Figure 3 is a contour view of a pair of the deflection elements 4000. As can be seen, elements 4001 and 4002 extend upward and face opposite directions. Figure 4 is a contour view of corresponding retention elements 3000 that protrude from lid 2000. When lid 2000 is closed, deflection element 4001 is deflected by retention mechanism 3001 and deflection element 4002 is deflected by retention mechanism 3002. More particularly, sloped edge 4102 of deflecting element 4002 is contacted and forced laterally by edge 3102 of retention mechanism 3002. Similarly, sloped edge 4101 of deflecting element 4001 is contacted and forced laterally by edge 3101 of retention mechanism 3001. When lid 2000 is fully closed deflecting mechanisms 4001 and 4002 are retained in position within the interior regions of retention elements 3001 and 3002, thereby preventing lid 2000 from being lifted open. Thus, the retention mechanisms mechanically embrace the deflection elements when the lid is closed to prevent the lid from opening.

[1017] To open lid 2000 a key is required as shown in Figure 5. Each arm, 5100, 5200 of key 5000 is inserted through separate holes in lid 2000 into the interior region of a different one of the two retention mechanisms 3001,3002. By twisting the key, the deflection mechanisms 4001 and 4002 are pushed out of the interior regions of the retention mechanisms, thereby enabling the lid to be opened. When this operation is performed for both sets of retention mechanisms 3000 lid 2000 will open.

[1018] Figure 6 is a front view of a preferred embodiment of the present invention. Shown are two sets of deflection mechanisms 4000, interior walls, 1900, door 1500, threshold 1600 and lip 1300. Also shown are rodent entry doorways 1700. The bottom

interior surface 1002 of enclosure 1000 is curved at the edge where exterior vertical wall 1010 meets bottom surface 1002. This configuration forms curved thresholds 1005 to doors 1700. Curved surfaces formed along the interior periphery improves maintenance by increasing the ease with which debris can be removed from the bait station through the rodent entryway doors without any adverse impact upon the tamper resistance of the structure.

[1019] Although the present invention and its advantages have been described in detail, it should be understood that various changes, substitutions and alterations can be made herein without departing from the spirit and scope of the invention as defined by the appended claims. The invention achieves multiple objectives and because the invention can be used in different applications for different purposes, not every embodiment falling within the scope of the attached claims will achieve every objective. Moreover, the scope of the present application is not intended to be limited to the particular embodiments of the process, machine, manufacture, composition of matter, means, methods and steps described in the specification. As one of ordinary skill in the art will readily appreciate from the disclosure of the present invention, processes, machines, manufacture, compositions of matter, means, methods, or steps, presently existing or later to be developed that perform substantially the same function or achieve substantially the same result as the corresponding embodiments described herein may be utilized according to the present invention. Accordingly, the appended claims are intended to include within their scope such processes, machines, manufacture, compositions of matter, means, methods, or steps.

[1020] What is claimed is: